R E P O R T R E S U M E S

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DEVELOPMENT AND EXPERIMENT IN COLLEGE TEACHING, A COMPENDIUM OF REPORTS ON EDUCATIONAL EXPERIMENT AND DEVELOPMENT IN THE DISCIPLINES AND PROFESSIONAL SCHOOLS AT 11 MIDWESTERN UNIVERSITIES.

BY- ERICKSEN, STANFORD C.

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PROVIDED IS A COMPENDIUM OF REPORTS WHICH IS THE FOURTH IN A SERIES ON EDUCATIONAL EXPERIMENT AND DEVELOPMENT AT 11 MIDWESTERN UNIVERSITIES. INCLUDED IS A COLLECTION OF SUMMARIES OF EXPLORATORY EFFORTS BY COLLEGE PROFESSORS TO DEVELOP NEW AND BETTER WAYS OF TEACHING. USUALLY THESE ARE LOCAL DEVELOPMENTS AIMED AT IMPROVING THE CONDITIONS FOR LEARNING IN A SPECIFIC SUBJECT-MATTER AREA, BUT MANY OF THE PROCEDURES CAN BE GENERALIZED FOR APPLICATION IN OTHER DEPARTMENTS OR MAY BE USED TO STIMULATE THE SEARCH FOR FRESH ALTERNATIVES. THIS DOCUMENT IS ALSO AVAILABLE FOR $0.50 FROM STANFORD C. ERICKSEN, CENTER FOR RESEARCH ON LEARNING AND TEACHING, 1315 HILL STREET, ANN ARBOR, MICHIGAN 48104. (DS)

Development and Experiment In College Teaching

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A compendium of reports
on educational experiment and development
in the disciplines and professional schools
at 11 Midwestern universities
Prepared and distributed by the
CIC Panel on Research and Development
of Instructional Resources

SE 004 577

REPORT NO. 4

SPRING 1968

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of Instructional Resources

The Committee on Institutional Cooperation (CIC)
was established in 1958
by the Big Ten Universities and the University of Chicago
to facilitate pooling of resources and talents
on matters of mutual concern
in higher education

Foreword

This report offers a collection of summaries of exploratory efforts by college professors to develop new and better ways of teaching. Usually these are local experiments aimed at improving the conditions for learning in a specific subject-matter area, but many of the procedures can easily be generalized for application in other departments or they may stimulate the search for fresh alternatives.

The Committee regards the teacher as the primary audience for this series of reports and therefore most of the items fall under Section I: Subject-Matter Areas. The second section, University-Wide Activities, includes descriptions of institutional facilities, instructional media arrangements, and broad programs which span the disciplines. Section III is the Cumulative Index to all four published reports.

This Report will serve its purpose if it provides a useful exchange of information between college teachers. These are no "instant teach" solutions and they require considerable responsibility on the part of the subject-matter specialist—the individual teacher—who might wish to adapt them to his particular area and purpose.

For those who are interested, single copies of Reports Nos. 1, 2, and 3 are available at the address given below at a cost of $.50 each to cover mailing and handling expenses.

COMMENTS AND REQUESTS FOR COPIES
of this report are encouraged by your university representative
or write to:

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Professor Ericksen is chairman of the CIC Committee on Research and Development of Instructional Resources and served as editor of this Report, assisted by Barbara Z. Bluestone.

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Articulated Instructional Media Program

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III. CUMULATIVE INDEX

I. Subject-Matter Area

BOTANY

Cinemicrotomic Films for Botany Instruction

A new method for staining and photographing sectional views of biological specimens using a newly developed automatic apparatus has been devised at Purdue University. The basic innovation is a system for staining the surface of the specimen in the microtome before each section is cut. The stains are pumped from temperature-controlled reservoirs and directed through small jets to flow over the surface of the fixed specimen mounted in the microtome. Electric timers and a multiple switching unit automatically control application of one or more stains, followed by rinses, an air blast to remove droplets of the final rinse, photo illumination and exposure, and cutting the microtome in continuing cycles as thin as one micron. Any number of photos (motion picture frames) can be exposed on each section, at any degree of magnification up to the limits of the microscopic optics used with the camera. Stained sections removed by the microtome can be automatically discarded or manually collected and mounted as permanent slides.

The filmed record can provide a three-dimensional effect maintaining registration, or consistency of subject-viewer orientation, from section to section through the depth of the specimen. Viewed individually, the photos are an aid in anatomical measurement and information retrieval.

Using this technique, cartridged loops of 13 botanical subjects have been edited and optically printed, combining motion and stop-motion with superimposed titles, which identify parts of plant structure. These films are available to students for individual use in the Audio-Tutorial Laboratory (see Abstracts of Institutional Developments at CIC Institutions, Report No. 1).

For further information, write to Mr. Roy Mills (Instruction and Research Film Unit) or Professor S. N. Postlethwait (Department of Botany) at Purdue University, Lafayette, Indiana 47907.

CHEMISTRY

Use of TV and VTR in Undergraduate Chemistry Instruction

The Department of Chemistry at Ohio State has installed two closed-circuit television systems for use in general chemistry instruction. One closed-circuit system is centered around a large screen TV projector which projects a 12' x 9' picture at the front of a 350 seat auditorium. This arrangement makes it possible to magnify live lecture demonstrations, to insert TV tapes into the classroom presentation, or to bring into the classroom live telecasts from any laboratory in the department allowing two-way communication between the instructor or the students in the classroom and the scientist in his laboratory.

The second closed-circuit system, a network of three channels, connects fourteen general chemistry laboratories to a studio from which live, taped or filmed pre- and post-laboratory discussions can be transmitted. The studio is arranged so that three lessons can be transmitted simultaneously.

Closed-circuit systems, designed with the assistance of the Tele-communications Center Staff, use non-professional TV equipment which is controlled and operated by the teaching staff of the Chemistry Department.

The department is also using approximately 100 specially trained, high ability undergraduate students to assist graduate teaching assistants with laboratory instruction and with grading of quizzes and laboratory reports. These students, whose grade-point average in chemistry is 3.7 or better, were given special training—some for ten weeks during the summer—before being assigned. Their efforts have made it possible for the graduate students to spend more of their time in decisive teaching situations.

Films and television tapes, prepared by the teaching staff of the department, are viewed and discussed by the graduate teaching assistants and the student assistants before being shown to students in the laboratories. All laboratory TV presentations emphasize magnification, such as extreme close-ups of the apparatus, instruments or techniques under consideration. In preparing films or tapes, the camera is placed over the shoulder of the demonstrator so that only his hands and the equipment before him are photographed. In this way, the student sees on the screen during the pre-laboratory instruction, the same thing he will see as he performs the experiment himself.

The combination of the two TV systems and the added flexibility and teaching power provided by undergraduate student assistants has created a wide variety of opportunities for innovation in chemistry instruction.

For additional information write to Professor W. T. Lippincott or to Mr. W. Robert Barnard, Department of Chemistry, The Ohio State University, McPherson Chemical Laboratory, Columbus, Ohio 43210.

EDUCATION

Internship for College Teachers of Education

A comprehensive internship for prospective college teachers has been instituted by the School of Teacher Education at Michigan State University. The program, now in its second year, involves all of the teaching assistants in Educational Psychology and Sociology and Philosophy of Education courses.

During their first year the interns serve as discussion leaders for groups of 25-30 students two days per week, building their discussions upon lectures given by senior staff members three times each week and upon reading materials assigned in the course. They meet with the lecturers once a week for a discussion of the content and implications of the lectures, and once a week with the intern supervisor, a senior staff member whose sole function is to work with the interns toward the improvement of their teaching.

Group meetings for the interns involve discussion of such topics as teaching methods, group dynamics, evaluation of students and the course, course objectives, and related problems. These meetings are conducted by specialists from various departments on the campus.

Individual work with the interns, supervised by the senior staff member, is done through class visitation and TV recordings of class sessions, followed by individual conferences in the senior staff member's office. At the end of the term evaluations of the intern's effectiveness as a teacher are obtained from the students in the intern's discussion groups and the results of these evaluations are then discussed with each intern.

At the end of their first year the most outstanding interns are chosen to teach the entire course during the summer term. Although they work under the direction of the intern supervisor they are given considerable responsibility for the organization, teaching and evaluation of the course. During the second year those interns who are reappointed serve as resource people for the new interns and, more significantly, play an important role in our discussions concerning course objectives, content, organization, evaluation, development of media, and training of new interns.

Additional information may be secured by writing to Dr. William E. Sweetland, College of Education, Michigan State University.

Preparation of Pre-Service Teacher-Education Students in Educational Research and Development

A program to identify and train an undergraduate recruitment pool for advanced work in educational research and development was initiated in 1967 at The Ohio State University on a pilot basis. The program is a non-teaching minor in educational research and development and is being offered as a voluntary elective within the existing degree requirements.

The major objective of the program is to enable students to identify and articulate educational problems and to use research and development tools in undertaking relevant modes of action. The program involves approximately 20 credit quarter hours of an intensive research-development sequence and 10 credit quarter hours of elective coursework in related areas. In addition to the traditional lecture approach, great emphasis is placed upon seminars and individual conferences which provide opportunities for closer faculty-student interaction. The program culminates in the conducting of an individual research project of some important, researchable educational problem of interest to the student and which involves problem conceptualization,

research design, data collection, and report of findings.

The students involved in the program were self-selected from a list of undergraduate education majors who obtained a 2.8 or higher cumulative grade-point average and completed between 45-136 hours of coursework.

The establishment of this program in educational research and development as a regular curricular offering in the College of Education will be determined by an explicit evaluation of the program in 1968. For further information contact College of Education, 1945 North High Street, Columbus, Ohio 43210.

Elementary School Science-Mathematics Teaching Laboratory

A science-mathematics teaching laboratory for elementary school teacher education has been established at The Ohio State University. It is designed to:

(1) develop the elementary school teacher's competence to direct integrative experiences in science and mathematics;

(2) provide direct teaching experiences with children for the elementary education major;

(3) individualize learning opportunities for both pre-service and in-service elementary school teaching personnel.

Operation of the teaching laboratory in its pilot phase began during the Autumn Quarter of 1967. The laboratory component is now an integral part of the undergraduate science methods and mathematics methods courses which formerly were lecture-discussion oriented. The laboratory experiences include: carrying out inquiry-oriented problems, examination of recently developed curricular materials, preparation and trial teaching of evaluative materials, diagnostic interviews with an individual child, exploration of community resources, and consultation with resource personnel.

A crucial dimension of the teaching laboratory operation is the provision for periodic conferences with individual students. Through these conferences and formal diagnostic testing procedures, students' needs and interests are determined and provision made for independent study.

The teaching laboratory will eventually be developed as a resource center with a classroom, library, seminar room, small group meeting spaces, and office space for instructional personnel. Such a center would include use of video tape equipment for micro-teaching, increased involvement of students with children, development of instructional packages, preparation of math-science specialists, large-small group instruction, and use of automated instructional devices.

For further information contact Professor Martin L. Languis or Lorren L. Stull, College of Education, The Ohio State University, 1945 North High Street, Columbus, Ohio 43210.

Project MODELS: An Environment for Increasing Learning Efficiency and Conducting Research and Development

The Wisconsin Research and Development Center for Cognitive Learning and four local school systems have formed a Research and Instructional Unit which since the 1965-66 school year has provided a facilitative environment for school related research, development, and innovation.

This undertaking—Project MODELS (Maximizing Opportunities for Development and Experimentation in Learning in the Schools)—has not only provided opportunity for research within the classroom but has also involved teachers and unit leaders actively as researchers. Constant and immediate feedback has challenged instructors to improve their teaching.

The Research and Instruction Unit is a group of certified teachers and one or two non-certified personnel who jointly assume responsibility for an instructional program. The unit leader, who teaches part time, is responsible for the instructional program of the unit. Certified teachers carry out the usual instructional responsibilities but operate as a unit rather than as self-contained teachers. The teacher aides provide help with clerical and routine tasks and assist teachers.

Total schools are now organized in this pattern. This type of organization incorporates unit leaders and principals in the instructional decision-making committee of the school, enabling the instructional program to be communicated to all levels. It allows time for planning the instructional program and decision-making during regular school hours, utilizes key certified personnel in planning the schoolwide program, and increases the effectiveness of the building principal and the central staff in improving instruction.

For additional information, write to Mrs. Doris M. Cook, Coordinator of Project MODELS, Wisconsin Research and Development Center for Cognitive Learning, University of Wisconsin, 1404 Regent Street, Madison, Wisconsin 53706.

ENGINEERING

Teaching Keypunch Operation Via Video Tape

The University of Michigan's Computing Center, Center for Research on Learning and Teaching, and Television Center have combined their resources to provide 800 Engineering College sophomores with videotaped instructional units on the use of

the card punch, a skill required of all Mathematics students to enable them to effectively use a computer for problem solving.

The units were produced with the care and resources normally reserved for educational film production. A writer-director worked with the faculty to determine the educational objectives of the presentation and then to structure a television script to best achieve those objectives. Each word and picture were carefully studied to assure proper sequencing, adequate reinforcement, and pacing.

In each unit, step-by-step directions are superimposed over shots of the machine in operation and outline reviews are used throughout. These materials are available on paper to the student after the presentation. It is hoped that eventually the student will be able to view the presentation on cartridged film or videotape at the card punch itself so that he can actually operate the machine while the presentation is in progress.

This method of instruction has obvious qualitative advantages over presentations by teaching fellows in recitation sections after which the students are released to the machines. The viewing of the videotape and the availability of review materials after the viewing has resulted in quicker learning by the students and a lessening of the hours each spends at the card punch.

For further information contact Mr. Hazen Schumacher of the University of Michigan Television Center.

JOURNALISM

Using New Media for Journalism Instruction

The Department of Journalism and the Center for Research on Learning and Teaching at the University of Michigan have cooperated in the development of a programmed instructional unit to teach the formal structural rules of headline writing. It is the first of a series of projects to develop new self instructional units for journalism students. The program is intended for use by college students above the freshman level and will eventually be available for use in junior colleges and high schools as well.

Begun originally by Dr. Robert Bishop of the Department of Journalism during a CRLT-sponsored Programming Workshop for University Faculty, the headline writing unit has since been revised, expanded and tested with both high school and college students. It now consists of a 75-page booklet and a two-page ruled sheet to aid the student in counting. Results from tests in high school and college indicate that students learned the rules for headline writing at least as effectively using the program as by conventional methods. The positive results of the headline program have stimulated work on a programmed guide to help students to familiarize themselves with the conventions and use of the Associated Press stylebook, and a program

to teach the principles of layout and design of news pages.

The Department of Journalism is now seeking funds for an expanded program for the incorporation of new media in journalism instruction. Plans include the construction of self-instructional materials for news writing, design and layout, and copy editing. The Department also plans to use videotape in the development of these materials and to provide the students with reporting experience for which present curriculum offers little time. A kit for practice in layout and design is also being developed by faculty members.

More detailed information is available from Dr. Robert Bishop or Mrs. Elizabeth Gall, Department of Journalism, University of Michigan.

LANGUAGE

New Approaches to the Teaching of Chinese

Annotation of Motion Pictures for Language Teaching

The dialogs of two Chinese motion pictures, Bìsywě Hwáng-hwä and Wú Fèng, have been transcribed with character and Romanized versions placed side by side. English annotations highlight new vocabulary, grammatical patterns, and cultural implications. Sentence patterns are given at the end of each section of the annotated script. The student reads the script before seeing the film. The innovation possesses many advantages not offered by ordinary texts: (1) language is presented in a live situation; (2) film serves as the best substitute for a native speaker's environment; (3) learning of a foreign language is made more meaningful and interesting; (4) prospect of viewing the film and listening to the dialog with understanding motivate the student to more diligent study.

Collaboration With Visiting Foreign Scholars Who Speak Little or No English

A course in Sinological Method is being offered on an experimental basis with a visiting Chinese scholar as the principal instructor and an instructor on the regular staff as his collaborator. The course meets twice a week for a one and one half hour session. During the first hour, the foreign scholar lectures entirely in the foreign language with occasional interruptions by the collaborator for English translations. The following half hour is devoted to questions and discussions, primarily in English. This innovation offers students needed courses they could not otherwise obtain and also affords the collaborating faculty the opportunity to prepare a workable syllabus for their own teaching in subsequent years.

Use of Etymological Materials in Basic Workbook for Teaching Chinese Character Writing

A workbook in use since the Autumn Quarter 1966 adds etymological materials to the conventional format approach in the teaching of character writing. Students alerted to the divergence of present calligraphic forms from their etymological prototypes recognize characters more discriminatively and write them in a more acceptable fashion. The workbook includes etymological and formal introductions, stroke-order and graded tracing sheets for each character, and appendices dealing with Chinese radicals, simplified characters, and different print type forms.

For additional information contact Professor Eugene Craig, East Asian Languages and Literatures, The Ohio State University, Columbus, Ohio 43210.

LIBRARY SCIENCE

Teaching an Extension Course by Tele-Lecture

A library science course in cataloguing and classification is being taught via tele-lecture at the University of Illinois as a result of collaboration between an instructor and a media specialist. (A Victor-Electro-Writer /VERB/, normally used with tele-lecture, is unable to transmit visual material prepared in advance. Taught in a conventional manner, the instructor takes samples of books and catalogue cards, displays these in front of the class, and/or, passes them around to the students.) Since a great deal of the information processed in the classification and cataloguing course is visual, the 2x2 slide medium was selected. All visual information of significance was photographed on 2x2 slides, sequenced by the instructor, numbered, contact prints made, and mailed to a proctor at the class location (Rock Island Arsenal).

The hardware required for this system included a Bell-Telephone Tele-lecture unit, a speaker phone for the instructor and a Carousel projector located in the remote classroom. Since the University Wide Telephone Service (WATS) lines were used, there were no telephone charges.

The instructor met the students in person for the first meeting. Subsequently the sequence of a normal evening class was as follows. The instructor went to a campus location where the speaker phone was located, set up an 8x10 card with photos and names of students, organized the lecture notes and the slide sequence previously mailed to the student location, then dialed the telephone number several minutes in advance of class time to permit the proctor to adjust the volume. The tele-lecture unit is equipped with two microphones which permit students in the audience to ask questions at any time. During this course, students discussed problems with the instructor before and after class, during the formal class presentation, and during class breaks. Reports to date indicate that students and instructors are satisfied

with the medium and the manner in which the course is presented. The visual material generated for this course will be used by the instructor in teaching conventional courses located on campus. Further information may be obtained from Mrs. Anne Fox of the Graduate School of Library Science at the University of Illinois, Urbana, Illinois.

MATHEMATICS

Mathematics Laboratory Project for Elementary Teachers

In an attempt to better handle the required course for prospective elementary mathematics teachers, Michigan State University has decided to replace its traditional four-day-a-week lecture course on the structure of elementary number systems, attended by more than 400 students,to a three-day-a-week lecture session supplemented by a laboratory session with a small group of 40 students. Each laboratory session focuses on the use of concrete manipulative materials from which the mathematical content can be abstracted. Each student has opportunities to use the materials individually or in a small group of three or four, to abstract the mathematical ideas, and at the same time to experience how the materials can be used in classroom settings.

Materials used in the laboratory include attribute games and problems, multibase arithmetic blocks, colored rods, geoboards, WFF-N-PROOF games, Madison Project shoeboxes, measuring devices, probability devices and a variety of books, pamphlets and home-made devices.

The laboratory sessions are conducted by graduate assistants who have particular interests in teacher education and who themselves have had public school teaching experience.

For further information write to William A. Fitzgerald, Associate Professor of Mathematics, Michigan State University.

NURSING

Multimedia Project in Nursing

A multimedia instructional system in nursing supported by a U. S. Public Health Service grant is being developed at Michigan State University. The purpose of the project is to provide a new approach to teaching basic nursing courses through the use of a programmed multimedia concept of teaching in the lecture room and

independent study laboratory. The main objective will be to develop instructional methods and media which will enable students to learn more effectively in the first sequence of nursing courses by:

(1) Identifying specific content to be included in the programmed units of study;

(2) Developing the behavioral objectives identifiable with each of the following areas: conceptual, factual, attitudinal, and developmental;

(3) Programming units of desired learning experiences utilizing all available resources—faculty, staff, media, and facilities.

The independent study laboratory will contain individual study carrels equipped with film projectors, slide projectors, tape recorders and other audio-visual teaching materials. The project staff will develop films, slides, sound tapes, and other materials to be used by the student as she pursues each unit of study. Each lesson will be programmed to include various activities such as listening to pre-recorded audio tapes, studying corresponding slides, films or diagrams, using charts or models, and doing suggested readings. The audio tape will direct the student in the study of the materials and present information not covered elsewhere. Lecture time will be limited to presentation of information that cannot effectively be presented elsewhere.

Each student will be able to pace her learning experiences according to her ability to assimilate the information and achieve certain skills. Each student will be evaluated on what she has learned rather than how much or how fast she has learned.

For additional information write to Isabelle K. Payne, Professor of Nursing, Michigan State University.

PHYSICS

A Graduate Seminar on Physics Teaching

A graduate seminar on Problems of Physics Teaching and Higher Education was begun in fall 1967 within the School of Physics and Astronomy at the University of Minnesota. Under the direction of Associate Professor Peter G. Roll, the seminar is concerned with some of the specific techniques, materials, and problems of teaching physics at the undergraduate level, and with the relationship of these to other aspects of higher education. In concept, the seminar is intended as an outlet for the presentation and critical discussion of old and new ideas and developments related to physics instruction, in much the same way as the conventional research

seminar is a forum for new ideas and developments. And like its research counterparts, this seminar is aimed at bringing together students and faculty who are interested in the field.

Regular weekly meetings of the seminar have consisted of relevant talks, demonstrations, and group discussions, with speakers drawn from the physics faculty, from other areas of the university, and from outside. During the fall quarter of 1967, the schedule began with three sessions on applications of computers to instruction. These were followed by a demonstration and panel discussion of videotape recording as a tool for improving lectures; a demonstration lecture on the role of demonstration lectures in physics; a review of recent innovative approaches to physics laboratory instruction; an informal evening "bull session" among some of the participating students and faculty; and a description of problems associated with laboratory instruction at small colleges.

Graduate students enrolled in the seminar for credit (there are five this year) are asked to carry out a small instructional development project of their own choosing, under faculty guidance. Projects currently under way or planned include development of a new introductory lab experiment; construction of materials for presentation by computer; a survey of student attitudes and study loads in courses for non-science students; and production of a videotaped tour through a research laboratory, to be shown to introductory physics classes.

More information is available from Professor Peter G. Roll, School of Physics and Astronomy, University of Minnesota.

PSYCHOLOGY

A Seminar in the Teaching of Psychology

A seminar called "Principles and Methods of Teaching Psychology," initiated in 1964 by Professor Frank Costin at the University of Illinois, is required of all graduate students in the Department of Psychology who expect to be teaching assistants, or who are currently engaged in teaching. The course is also opened to other second-year graduate students. The major objectives of the seminar are to improve the performance of assistants who have already started to teach, to help other graduate students prepare for their jobs as teaching assistants, and to prepare students who expect to continue teaching after they have completed their graduate training. The seminar carries academic credit, and is considered to be a regular part of graduate education as well as an in-service training program.

The content of the seminar is divided into eight areas: developing course objectives; organizing course content; planning and handling teaching-learning situations; evaluating the attainment of course objectives; advising and counseling; ethics in teaching; "teaching versus research"; and research problems in teaching psychology.

In addition to participating in weekly sessions students are required to prepare individual projects, which in the past have included course outlines, critical essays on issues in teaching, course examinations, relation of items to course objectives and content, presentation of a complete lecture in class, discussed afterward by the seminar.

An assessment was recently completed of the participants' opinions and attitudes concerning course content and activities; in addition, the effects of the seminar were evaluated by comparing the teaching behavior of assistants who had completed the seminar with the teaching behavior of assistants who had not yet taken it. (Teaching behavior was measured by means of students' ratings of their assistants.) Assistants who completed the seminar showed significantly greater gains in student-teacher rapport, group interaction and feedback.

For additional information write to Dr. Frank Costin, Department of Psychology, 314 Gregory Hall, University of Illinois, Urbana, Illinois 61801.

Using TV to Instigate Class Discussion

The elementary psychology course at Purdue University is using TV tapes made in Purdue studios and televised films to stimulate class discussion. Students are requested to prepare for class by reading text material prior to class time. Class time is devoted to stimulation, clarification, and discourse among a group of students who have prepared themselves to discuss a prearranged topic. Discussions are divided into two parts: a TV presentation and discussion. TV is used because it enables the user to present the thinking biases, special interests, and personalities of various staff members and of people not on campus. It facilitates the presentation of different demonstrations with a minimum of wasted time and provides a glimpse into campus research facilities.

Some of the TV presentations are straight films, others are demonstrations; some are baited to stir student response. Following each TV presentation the instructor turns off the set and waits for students to react. His function is to keep the discussion flowing and relevant, to help students recognize one another's talents, and to help out in a pinch when clarification is not provided by the students themselves. They do not serve to convey information. Further information is available from Professor Joseph Robinson, Department of Psychology, Purdue University, Lafayette, Indiana.

SOCIOLOGY

A Developing Sequence of Integrated Statistics and Methods

The sociology faculty of the University of Illinois at Chicago Circle is currently engaged in the second year of a phased program of change in the undergraduate statistics and methods curriculum. The Office of Instructional Resources has developed a self-instructional remedial mathematics program for students who lack the necessary mathematical skills to perform adequately in the statistics and methods course required of all majors. A basic diagnostic test permits students to enter the program at a level appropriate to their skills. Continuous self-tests permit students to by-pass those sections of self-instruction they do not require. Based upon pilot studies with students at Chicago Circle, it is estimated that 40 per cent enrolled in the statistics course during any quarter have acute deficiencies in mathematics skills. The basic diagnostic test is currently administered to all students and, after explanation of the instructional materials, students may voluntarily pursue the self-instructional materials.

To deal with the student's resistance to taking these basic courses, sociology is shifting in phases to an integrated one-year (three quarter course) sequence of statistics and methods. Topic coverage will eventually include philosophy of science, the relationship between theory and methodology, statistical inference, formulating a research problem, research methods, sampling, tools of analysis, sample statistics, and presentation of research findings. It is clear that such an integrated course would not conform to a traditional division of labor between methods and statistics courses. The two quarter methods sequence is being offered this year for the first time. Basic changes include weekly assignments from a programed statistics text, in addition to regular text assignments. Weekly quizzes are given to insure student preparation and to allow for continuous self-evaluation of student progress. Both quizzes and programed readings supplement lecture and laboratory instruction.

Further information may be obtained from Mr. Richard McKinlay, Department of Sociology, 1827 University Hall, University of Illinois, Chicago Circle, Chicago, Illinois 60680.

SPEECH

Computerized Evaluation and Simulation of Group Discussion Processes

A special computer program called PROANA5, which uses social science research as a basis for the evaluation of interaction processes has been developed to teach Group Discussion at Michigan State University.

The program proper is used in three ways: (1) data derived from classroom discussions are processed in such a manner that the output from PROANA5 serves as the critique for the activity; (2) contrived data are processed so as to provide the students in the class with a printed simulation of the effects of the previously identified variables; (3) data are submitted by the students to represent the effects of the variables discussed in class as related to small group interaction.

Students are told of the approach to the analysis of small group interaction represented by PROANA5 and are given descriptions of the variables contained in the program. The class is divided into five member discussion groups.

As each of the discussions takes place the instructor keeps a record of the interactive and non-interactive communication. Three tally forms are kept, one for each period of discussion (each period being 10-13 minutes in length). Data are punched on cards and then run through the PROANA5 program. Written comments by the instructor are punched and listed by PROANA5 after the analysis. This procedure is used in the evaluation of all the classroom assignments. However, both the membership of the groups and the type of topic are changed from assignment to assignment.

The second use of PROANA5 is to simulate the effects of certain variables on small group behavior. The possible effects of these variables on group interaction are discussed in class. Data are contrived as illustration of this type of material and submitted to PROANA5 in the form of punched cards.

Students are also asked to make up data in a form suitable for analysis by PROANA5 which illustrate the effects of variables of group discussion covered in class. The students are provided with a set of instructions for using PROANA5 and are told to simulate the effects of the variables they have chosen by manipulating the variable values read into the computer while under the control of PROANA5.

For further information concerning PROANA5 contact Dr. William B. Lashbrook, Speech Communication Research Laboratory, Michigan State University.

II. University-Wide Activities

ADMINISTRATION, ACADEMIC FACILITIES

Center for Research on Learning and Teaching

In 1962 a special U-M faculty committee recommended that there be established a "Center for University Teaching." In its charge, the committee stated "It is considered absolutely essential that the Center have a very strong mandate for the development of a research and evaluation function. It should be enjoined to encourage the trial of new techniques accompanied by appropriate evaluation of the effectiveness of the effort....it /should/ not be constrained to devote its attention exclusively to /programed learning/ or to any other single educational tool." These are important statements that give the Center its distinctive role: (1) an agency of the faculty; (2) with research and development responsibilities; (3) and a broad and flexible profile of activity.

The Center is attached to the office of the Vice President for Academic Affairs and is budgeted from University funds as well as being supported by funds from foundations and government agencies. The staff is made up of research psychologists plus specialists from other academic areas most of whom serve on a part-time basis. Emphasis is placed on projects that involve the subject-matter teacher and his own course and students. Part of the Center's operating budget, the Wolverine Fund, is earmarked "as belonging to the faculty" and is used for seed grants to support experimentation on instructional procedures.

The Center's most direct service function is the publication of its Memo to the Faculty, a bi-monthly clearinghouse report of new information about college teaching. The Center also conducts regular workshops for faculty members who seek technical information and skill in such areas as programed instruction. The research and development activities are represented by three main categories: (1) automation and educational technology; (2) experimental teaching procedures; (3) the influence of social and personality factors on the educational development of the individual student.

Additional information and a list of publications are available from Stanford C. Ericksen, Director, 1315 Hill Street, Ann Arbor, Michigan 48104.

A College Within A College

The Residential College of the University of Michigan seeks to combine the virtues of a small liberal arts college with the rich resources of a vast university. The College will be a locus of experimentation, presenting unique opportunities for developing new curricular and administrative arrangements and allowing for detailed study of various aspects of student development. Experimental programs which meet with success may later be incorporated into the entire College of Literature, Science and the Arts.

The College, which opened its doors to 220 freshmen in August 1967, will eventually house 1200 students with the same range of backgrounds, accomplishments, and capacities as students from the College of LS&A. The faculty are selected from among the University teaching staff who have a special interest in teaching undergraduates.

The curriculum is designed to develop self dependence and to enrich and deepen the relations of students and their professors. It seeks to lead its students to a breadth of learning, an understanding of the arts, sophisticated command of English and a reasonable fluency in a foreign language, and a developed capacity for logical analysis in all spheres of intellect.

The curriculum will be flexible and will allow students, with the assistance of faculty members, to construct concentration programs which fit their interests. It will combine large lectures with seminars and independent study programs.

The residential plan for the college encourages the extension of academic interests into all aspects of student life. It provides for classroom facilities integrated into living quarters on a "campus" separate from, but close to, the main campus. Students will have access to all learning facilities of the University and will have the opportunity to enroll in classes outside of the Residential College.

For further information, contact Professor James Robertson, Director, Residential College, East Quadrangle, The University of Michigan, Ann Arbor, Michigan 48104.

"Credit by Exam" offered in Experimental Program

A flexible new two-year program started this academic year by The University of Iowa's College of Liberal Arts allows undergraduates to earn hours of credit toward their bachelor's degrees by taking examinations.

The purpose of the program is to allow students with good academic backgrounds from high school or other colleges to translate their educational experience into required credits by proving their competence on a national scale. The University gives the College-Level Examination Program of the College Entrance Examination Board, and uses the 50th percentile of the sophomore norms as the passing grade.

The students who pass get an exemption if they have done college work in a closely related field, or credit if they have not taken college courses in that field. They are then free to devote the time they have gained to their major field or other areas which interest them.

Those earning credit ranged in achievement from four hours to the maximum of 24 hours. All credits are in the "core courses" in literature, social and natural sciences, and historical-cultural studies, in which liberal arts students must earn 32 credit hours.

The chief impetus for the "credit by exam" program came from changes in secondary education and the Advanced Placement Examinations Program, and from the concern over the heavy emphasis placed on grades and credits. The testing program may enable the University to emphasize student accomplishment as the chief concern of higher education. It may also help the College of Liberal Arts place the increasing number of community college students. The exams will be used not for admission but for placing new students in courses according to their educational progress.

For further information contact Dewey B. Stuit, Dean, College of Liberal Arts, University of Iowa, Iowa City.

Pass-Fail Grading Experiment

During the winter semester of 1966 the College of Literature, Science and the Arts at the University of Michigan for the first time offered second-semester seniors in good standing the opportunity to elect one course on a pass-fail basis. The philosophy behind the decision was that students should be encouraged to broaden their academic training by allowing them to take courses outside their areas of concentration without the risk of losing grade points. Therefore pass-fail courses could not be chosen within the students' major field of study, nor could they serve to fulfill distribution requirements in the college.

Instructors were officially unaware of which students were enrolled in their classes on a pass-fail basis. Pass-fail students were expected to complete the same work as other students and were graded on an identical basis. At the end of the semester, instructors were required to turn in the letter grades for all students as usual; the registrar then assigned students "pass" for grades of C or better and "fail" for those below C. Students received only P or F on their transcripts and were not informed of their letter grades.

During the spring 1967 semester, 203 of approximately 1500 eligible students (13.5%) enrolled in courses under the pass-fail option. They chose a total of 104 different courses, 74% of which were in the humanities. The five most popular areas chosen were, in order, History of Art, History, English, Music Literature, and Psychology. Approximately 43% elected courses in which they had no previous curricular experience.

The overall grade point average (GPA) of those who opted pass-fail courses was 3.17, considerably above the average GPA for the college. Using grades obtained for 178 of the 203 students, it was found that 98.5% passed their courses. Level of performance in pass-fail courses (in terms of letter grades handed to the registrar) was closely related to the students' GPA's.

The pass-fail option is currently being offered to juniors as well as seniors, which should provide some new types of data on the experiment. More details are available from Mr. Charles Pascal, Center for Research on Learning and Teaching at the University of Michigan.

Summer Grants to Improve Instruction

Indiana University has undertaken a program to assist faculty members in the improvement of instruction through summer grants to cover salaries, assistants, and materials. This year emphasis will be placed upon undergraduate instruction and solution of problems relating to expanding enrollments and the need to increase faculty-student contact, incorporation of new instructional media and techniques into existing curricula, and intra-departmental and interdisciplinary cooperative efforts. This program is not designed to support faculty research. Awards will not be made for the preparation of textbooks.

Several departments will incorporate this program into their Summer Session offerings through use of ongoing courses as developmental laboratories. It is anticipated that among other things this program will complement the activities of the Faculty Development Institute, which is a Title VI B project. For more information contact David R. Derge, Associate Dean of the Faculties, Bryon Hall, Indiana University.

AUTOMATION AND TECHNOLOGY

Dial-Access Video and Audio Learning System

Ohio State University students are now able to dial the picture as well as the sound. The University's $450,000 dial-access learning system has incorporated 18 television receivers into the distribution system which previously brought only audio programs to students at remote points on the campus and in the University area (see Report No. 2, Fall 1966).

The Listening Center's $25,000 expansion into the visual field provides 9-inch television receivers in student booths also equipped with headsets. Students may don headsets and obtain the audio portion of an instructional program by dialing a three-digit number. This will also activate the video set, on which the student will select the appropriate visual program channel for his class.

Only two video program sources, those of the departments of Biological Sciences and Chemical Engineering, are employed during this experimental period. These two departments are showing osmosis, mitosis, and vorticity to their students, and are very enthusiastic about the added visual dimension which allows them to more effectively teach these topics. The initial operation is expected to generate additional new program material and to provide information on use of the video equipment. In the future, video capability will be added at the outlying points around the campus—the Listening Center system has 389 audio positions in operation in 11 university buildings and 24 fraternities and sororities near the campus. Its tape-recorded programs are on tap for students 95 hours a week in their living quarters

where they can be comfortable and do their listening assignments at their convenience.

The high-fidelity system now has a capacity of 92 program sources ranging in subject matter from Latin to opera and Mandarin Chinese, and since the system began operating, students have dialed it more than 2.5 million times. During a recent quarter, when the Columbus campus had an enrollment of 37,486, the system's automatic counter reported 535,401 calls. For further information contact Dr. Paul Pimsleur, Director, Listening Center, 63 Denny Hall, The Ohio State University, 164 West 17th Avenue, Columbus, Ohio 43210.

Educational Telephone Network as a Vehicle for College Instruction

An Educational Telephone Network (ETN), in operation by the University Extension of the University of Wisconsin since 1965, links 56 courthouses, 48 hospitals, and 11 University of Wisconsin Centers.

All the outlying points of the network are equipped with a loudspeaker and a telephone handset. A participant can hear lecture or conference proceedings by turning on the loudspeaker; by picking up the telephone handset, a participant can talk to all the listening points on the Network.

ETN was first used by the Postgraduate Medical Education Department to relay discussion of research and continuing education in medicine to practicing doctors in Wisconsin. Medical courses are planned for physicians, nurses, hospital administrators, medical technologists, radiologic technicians, nurse anesthetists, and others in the allied health field. The courses are designed to provide high caliber instruction and emphasize information of a practical nature.

In two years of experimentation the network has been used to conduct seminars in continuing education and workshops for lawyers, veterinarians, social workers, psychologists, and teachers in Wisconsin. The telephone network has recently been used to conduct freshman and sophomore college credit courses in conjunction with the Independent Study Program, adapting existing correspondence courses to include a two-hour discussion period once a week.

ETN has been used mainly to conduct formal classes, followed by discussion periods. In some cases the programs have been conducted by authorities in various fields located a thousand or more miles from the Madison campus. Prerecorded lectures have been sent from the authorities to be broadcast from Madison; such an authority can then conduct a question and answer period from his home.

For further information, contact Mr. Lorne Parker, Educational Communications, University of Wisconsin, Room 703, 606 State Street, Madison, Wisconsin 53706.

Instructional Media Laboratory

The Instructional Media Laboratory at the University of Wisconsin-Milwaukee was established by a faculty Instructional Media Committee in December 1966. The Committee had since 1964 taken responsibility for relating and future design of the University to known and predicted media capabilities, for acquainting faculty with media applications, for working with faculty members contemplating changes in instruction, for maintaining liaison with industry, and for maintaining a demonstration facility displaying available technology to interested faculty members.

Among the activities of the Instructional Media Laboratory are:

(1) Faculty Development Program. Through funds available from the Higher Education Act of 1965, Title VI-B, programs have been conducted to acquaint faculty members with the new media. Emphasis is placed on a "systems approach" with concern for specifying instructional objectives in behavioral terms.

(2) Course Development. Assistance is provided to faculty members interested in preparing new courses, or segments of existing courses. Presently, IML is assisting in the development of new programs in the areas of Nursing Education, Zoology, Botany and Art.

(3) Research. Significant information has been obtained on programed instruction, computer assisted instruction, dial access information systems, instructional television and other audio-visual applications.

(4) Curriculum Library. Library houses the largest selection of audio-tapes, filmstrips, phonograph records, programed texts, curriculum guides, standardized tests, and subject-matter texts in the area.

(5) Production Services. Assistance is provided for faculty members by a staff of artists.

(6) Consultation Services. Guidance on the uses of media is provided by a staff of media specialists to faculty, industry, school systems and other institutions of higher education.

For further information contact Dr. Robert Najem, Director, Articulated Instructional Media Project, 606 State Street, Madison, Wisconsin 53706.

Modular Film Design for Media Study and Teacher Education

The Department of Photography at The Ohio State University is distributing on a research basis "A Series of Motion Picture Documents on Communication Theory and the New Educational Media" produced for the U. S. Office of Education and released in the Spring of 1967.

Major, or "Planetary," films in the four-hour series include: The Information Explosion; The Process of Communication; Perception and Communication; and The Teacher and Technology. Support, or "Satellite," films include: Teaching Machines and Sidney Pressey; Music Research; The Communications Revolution; and Communications Conference.

Research on utilization patterns and the kinds of settings in which this material is currently being used includes a study of the effectiveness of the non-linear, flexible, modular design of the four major films. Such design, it is theorized, could make it possible for individual instructors to select and rearrange self-contained sequences ("Asteroids") from four systematically designed major ("Planetary") films to: (1) meet strategic instructional objectives; (2) overcome limitations of presentation time; (3) match specialized audience perceptions; (4) minimize the possible obsolescence of material which may, unless removed, contaminate the credibility of the total film; (5) readily adapt the films to other media uses (television, videotape, 8mm cartridges, etc.).

It is hypothesized that such flexible design, together with an emphasis on principles rather than on detailed content specifics, may extend the usefulness (and thus more fully amortize the original investment) to a wide range of communications-oriented fields such as business and industry, religion, the military, and the social and behavioral sciences. A special system of edge-coding the films, a simple method of splicing and un-splicing segments, detailed descriptions of content, possible usage patterns, and a background paper on the relationship of the material to the exposition of communication theory is found in a combination utilization manual and final report to USOE which accompanies the film series.

For additional information write to Dr. Robert W. Wagner, Chairman, Department of Photography, The Ohio State University, Columbus, Ohio 43210.

INTERDISCIPLINARY PROGRAMS

Center for Curriculum Studies

In response to established needs for a coordinated program to stimulate and support faculty effort for the improvement of education, the Regents of the University of Minnesota have established the Center for Curriculum Studies.

Under an Administrative Committee formed of the Deans of the major Colleges of the University, chaired by the Associate Vice-President for Academic Administration, the Center administers University funds in support of projects in educational research and development at the pre-college and undergraduate levels. The All-University Council on Liberal Education serves as an advisory board to the Center for undergraduate problems; a comprehensive faculty committee serves in a similar capacity for pre-college problems.

The Center coordinates and supports work in four broad program areas:

(1) School Curriculum and University Course Development. In addition to coordinating three major efforts (Project English, Project Social Studies and the MINNEMAST Project) in school curriculum development, the Center supports a wide range of projects to improve the quality of undergraduate education through a Small Grants Program.

(2) Research on and Development of Applications of Technology to Education. Current efforts are directed to the innovative use of TV and films and the use of the computer in education.

(3) Research on Fundamental Problems of Learning and Teaching. The Center supports research work, primarily in social and developmental psychology, of relevance to education with particular emphasis on assessment.

(4) Development of Inter-institutional Educational Research and Development Programs. The Center encourages educational projects among all faculties of institutions of higher education of the State of Minnesota, particularly those requiring the unique facilities of the University.

For further information regarding the Center and its program, write to James H. Werntz, Jr., Director, Center for Curriculum Studies, 157 Physics Building, University of Minnesota, Minneapolis, Minnesota 55455.

Institutes Action Study Program

The University of Iowa is trying to incorporate some aspects of the Free University within the regular University program. These include:

(1) Student initiated courses, seminars and colloquia;

(2) Freer association between students and staff;

(3) Possibilities in some cases for action by the students based upon their study of a selected problem. Such action would include the production of articles, monographs, social service activities, films and other materials.

A committee of ten—five students and five faculty members—was set up to facilitate the formation of faculty-student groups. Impetus for the formation of study groups comes not from the committee but from the students and/or faculty members themselves.

During the first year of operation opportunities were provided to participate in seminars and discussions on contemporary problems that previously were not available. In some cases academic credit for participation in these seminars and discussions was possible.

Among the Study groups offered were: "Media and McLuhan," "The History of Viet Nam," "Poverty Action Program," "Mythology and American Folk Literature," and "Literature and Theology." For additional information contact: Dr. Lowell A. Schoer, College of Education, University of Iowa, Iowa City, Iowa.

Instructional Development Project

The Audio-Visual Center at Indiana University is conducting an instructional development seminar for 30 faculty members representing ten academic and professional areas: (1) Business, (2) Dentistry, (3) Education, (4) Foreign Language (Spanish), (5) Health and Physical Education, (6) History, (7) Mathematics, (8) Medicine, (9) Microbiology, and (10) Music.

Phase I of the seminar, which coincided with the first semester 1967-68, involved weekly meetings devoted to an analysis of various facets of the instructional development process. Some of the topics explored in the seminar were: (1) Instructional Variables in Higher Education; (2) Mediated Individualized Instruction; (3) Auto-Tutorial Approach to Teaching; (4) Media Strategies; (5) Specification of Instructional Objectives; (6) Task Analysis; and (7) Case Studies of Instructional Development Activities in Higher Education.

During Phase II, which is now in progress, small working groups were established, one in each of the areas mentioned above. Each group has selected a unit of work representing 6-18 hours of traditional class time, which it will subject to analysis after an instructional development model has been agreed upon. Elements common to the models utilized are: audience analysis, consideration of constraints, specification of entry and terminal student behavior, development of criterion tests, task analysis, specification of content, instructional and media strategies, production or securement of stimulus materials, field testing, evaluation and revision.

Following completion of the "pilot unit" each participant will study the logistical support that would need to be provided in analyzing and synthesizing larger portions of his course.

For further information contact Dr. Gene Faris, Instructional Development Department, Audio-Visual Center, Indiana University, Bloomington, Indiana 47401.

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